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Improving the Quality of Indihome Complaints Service Using Lean Service Method (Case Study of Customer Care Plasa Telkom Solo)

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Abstract. *PT. Telkom Indonesia is a company engaged in the telecommunications sector. Nowadays, the necessity for internet networks has increased, notably since the COVID-19 pandemic. Thus, PT. Telkom Indonesia as the largest telecommunications company in Indonesia need to improve the quality of service, especially in the Indihome complaint service process. The Indihome service complaint process often causes many queues so that customers have to wait a long time to be served. This study uses the Lean Service method, by identifying 7 wastes in service companies and then reducing the amount of waste that occurs which causes inefficient and effective service processes. This study also uses VALSAT (Value Stream Analysis Tools) to identify waste in the service system flow. In the Indihome complaint service process, there are the most critical waste, namely the waste of delays and the waste of under-utilized resources. The proposed improvements for waste of delays and waste of under-utilized resources are maximizing the use of VIRSA (Virtual Plasa) machines, educating customers to use MyIndihome application, and conducting regular training for CSR employees. Through value stream mapping current state, it is known that the total time for customers to get service is 1709 seconds and through value stream mapping future state, it is known that the total time for customers to get service is 1468 seconds for each customer.*

Keywords: *Lean service; quality; VALSAT; waste.*

I. INTRODUCTION

With the COVID-19 pandemic, there has been a complete change in policy both in the education sectors and other activities in professional world. The majority of all educational activities are conducted online, so the need for an internet network is increasing. With the drastic increase in internet demand, telecommunication service providers are competing to improve the quality of service. Based on the APJII Internet Survey Report for the second quarter of 2020, internet penetration in Indonesia has reached 73.7 percent or 196.71 million users. This upsurge was recorded in the survey of the Indonesian Internet Service Providers Association (APJII) which was conducted on June 2-25, 2020 and involved 7,000 respondents in almost all parts of Indonesia (Jatmiko, 2020).

This condition along with the increasing use of the internet network also has an impact on increasing complaints about the internet network by the public, both in the fixed broadband and mobile broadband categories. Many complaints are related to network stability problems, disconnections, and uneven networks. According to the Indonesian Consumers Foundation (YLKI), there are at least 32 percent who complain about the internet network, complaints about disconnections, up and down networks, and so on (Gideon, 2021).

PT. Telkom Indonesia, as the largest telecommunications service provider in Indonesia, has experienced an increase in the number of complaints, notably at Customer Care Plaza Telkom Solo, which experienced an increase in the number of complaints during the COVID-19 pandemic. It is recorded from the internal data recorded by Customer Care Plasa Telkom, there are at least 12 customers per hour who make complaints of disturbances to Customer Care Plasa Telkom. Based on an interview from the Supervisor Customer Care Representative (CSR),

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that number is only customers who report disturbance complaints, not counting customers who carry out other service processes, such as service upgrades, new installations, and service removals. From the initial observation, the average cycle time required to serve one customer is about 19 minutes, while the standard time to serve one customer is 15 minutes. This has an impact on queues that are quite high, so Customer Care Plasa Telkom Solo needs to improve the effectiveness and quality of its service performance in order to minimize queues that occur, especially during the COVID-19 pandemic and reach the time standard that should be.

As an effort that can be applied to improve service quality, there are several methods such as Service Quality (Zeithaml and Berry, 1988); Importance Performance Analysis (Martilla and James, 1977); the KANO method (Sugijanto and Surabagiarta, 2016); Quality Function Deployment (Altuntas and Kansu, 2013); Lean Six Sigma (Arnheiter and Maleyeff, 2005) and queue theory (Artha and Ihsannudin, 2021). In service companies, Lean Six Sigma is often referred to as Lean Service. Lean service is a set of methods and equipment designed to reduce costs, improve performance, reduce waiting times, and eliminate waste so that the quality of services produced can be maximized (Isnan, 2013).

In this study, the Lean Service method is used to deal with the problems that occur. The choice of this method is because it can identify the root of the problem and waste that arises, is able to minimize activities or activities that are not value added (non value added activity), and maximize value added activities so as to achieve maximum process efficiency.

There are wastes which specifically defined for service companies by considering the activities of service companies that cannot be touched. The challenge faced in service companies is to develop the ability to recognize waste through customer experience analysis. There are eight types of waste, namely overproduction, delay, unneeded transport or movement, over quality, excessive variation and lack of standardization, failure demand and lack of customer's focus, underutilized resources, and manager's resistance to change (Andrés-López et al., 2015).

Lean can be successfully implemented in the service sector and is proven to be able to bring financially beneficial results and excellent customer satisfaction. Research on lean service is in the form of research on services provided by the company which serves as a tool for review and analysis for the development and improvement of the company (Vignesh et al., 2016).

Several studies with the same concepts have been written by Lukitasari and Ciptomulyono (2016), Nugroho and Jaqin (2017) and Van Bee (2016). In this study, using Process Activity Mapping as a tool to describe the types of activities in detail.

Process Activity Mapping can be used to map overall activities in detail to eliminate waste in the company so that it can improve quality, speed up the production process, and facilitate services. Several studies that use Process Activity Mapping to describe activities in detail, namely by Lukitasari and Ciptomulyono (2015) who describe the speedy disruption service process, Nugroho and Jaqin (2017) who use Process Activity Mapping to describe Indihome disruption services through the Call Center, and Van Bee (2016) which uses Process Activity Mapping to describe the process of Indihome services starting from interruptions, new installs, and service upgrades.

In addition to using lean service and process activity mapping as a tool to identify waste, research at the Plaza Telkom Solo Customer Care can use the six sigma concept which can improve and improve quality control and improve processes using the DMAIC method but in this case, just using Define, Measure, Improve and Analyze. The identification of existing waste in the company uses the Borda method, which can determine waste based on the largest weight value. After obtaining the largest weight value, identification of the causes of waste is carried out using Root Cause Analysis. From several studies that have been conducted previously, there are studies that also use DMAIC, Borda's method, and Root Cause Analysis as problem solving methods, namely research by

Adrianto (2018) in a study entitled Integration of Lean Service And Six Sigma To Reduce Waiting Time at Fast Food Restaurants (Case Study: Jank Jank Wings).

Based on the literature review above, waste elimination to increase the effectiveness of performance and service quality is important to do and so far this research has never been carried out at Plasa Telkom Solo Customer Care, thus proposing to eliminate waste which is useful for increasing the effectiveness of performance and service quality of Plasa Telkom Customer Care using lean service method with research output in the form of proposed improvements, and not until the implementation stage.

II. RESEARCH METHOD

Data collection was obtained from the results of observations, interviews and filling out the weighting of waste to the employees of Customer Care Plasa Telkom Solo.

Define

At this stage, identification of the Indihome disturbance complaint service process was carried out and then mapped the process in Value Stream Mapping. Identification of the service process is done by making direct observations and calculating the cycle time of each activity and then mapping the process with Visio software.

Measure

At this stage, a test of the adequacy of the service process observation data is carried out to find out whether the process observation data taken is sufficient, then identify critical waste by direct observation, interviewing the Customer Care Supervisor, and developing a questionnaire. The definition of waste used refers to a journal entitled Lean Service: Reassessment of Lean Manufacturing for Service Activities (Andrés-López et al., 2015). Respondents amounted to 12 people with 1 Supervisor Customer Service Representative and 11 Customer Service Representatives. However, 2 respondents were eliminated because the 2 Customer Service Representative respondents had less than one year of service, so the total number of respondents counted in the recapitulation and questionnaire processing was 10 respondents. Through the results of questionnaires that have been distributed to Customer Care employees using the BORDA method. This method is carried out by recapitulating the results of questionnaires that have been filled out by employees, giving weight to each frequency and multiplying each frequency by a weight to get a total ranking. From the ranking results that have been obtained, the highest ranking will be determined as critical waste that needs to be evaluated.

Analyze

At this stage, the calculation of value added activity, non value added activity, and necessary non value added activity is calculated. All activities are identified and divided based on several divisions, namely value added, non value added, and necessary non value added. This identification is done by referring to the theoretical basis and interviews with companies. Once identified, the value added activity, non value added activity, and necessary non value added activity are calculated by adding up the cycle time of each activity and calculating the percentage of each type of activity by dividing the total cycle time of each type of activity by the total cycle time of all activities multiplied by one hundred percent. Furthermore, an analysis of the causes of waste is carried out with Root Cause Analysis.

Improve

At this stage, future value stream mapping is carried out after calculating the value added activity, non value added activity, and necessary non value added activity through the activity mapping process, then proceed with making suggestions for improvements to the problems that occur by discussing with the Supervisor Customer Service Representative.

III. RESULT AND DISCUSSION

The steps taken in identifying the waste that exist in the Customer Care Plasa Telkom Solo use the DMAIC method starting from define, measure, analysis, and improve stages. The following is a discussion of each stage in DMAIC.

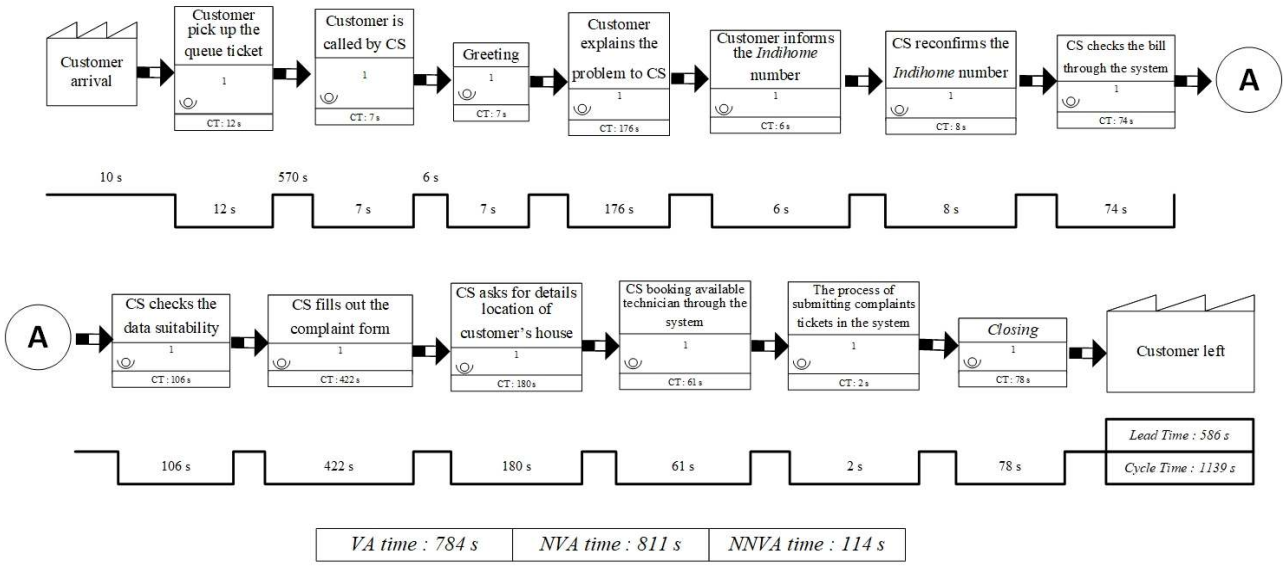

Figure 1. Value stream mapping current state

Define

At the define stage, it is explained about the value stream mapping current state which is described in Figure 1.

Measure

The measure stage explains the data adequacy test from the results of the service process time observations that have been obtained, and the table of critical waste recapitulation is obtained based on the results of distributing questionnaires.

Table 1. Data adequacy test

Activies	N′
Customer pick up the queue ticket	63
Customer waiting for complaint queue	40
Customer is called by CS	23
Greeting by CS	10
Customer explains the problem to CS	65
Customer informs the *Indihome* number	16
CS reconfirms the *Indihome* number	9
CS checks the bill through the system	51
CS checks the data suitability	3
CS fills out the complaint form	10
CS asks for details location of customer's house	54
CS booking available technician through the system	38
The process of submitting complaints tickets in the system	43
Closing	44

Based on the data adequacy test, it can be seen that the data taken is sufficient because the value of N' is smaller than the value of N where the value of N for all existing samples is 70.

After the calculation, it can be seen the weight of each waste. The highest weight is the selected criterion which becomes the basis for improvement for further improvement proposals. In this study, the 2 highest weights were taken, namely Delays and Under-utilized resources (see Table 2).

Analyze

This stage explains about process activity mapping current state and the following table is about the percentage of each activities, there are value added activity, non value added activity, and necessary non value added activity.

Based on Table 4, it can be seen that of the three types of activities that exist as much as 46% of the total processing time is activities that provide added value to the services produced, in addition there are 47% of activities which are activities that do not provide added value to services. generated, and 7% of the types of activities that do not add value but need to be carried out even though they do not add value to the services to be produced. The root cause analysis used in this study is 5 Why's. Table 5 describes root cause analysis for waste delays and

Table 2. Percentage recapitulation of critical waste

Waste	Frequency					Rank	Weight	%
	1	2	3	4	5			
Delays	0	0	3	7	0	37	0.20	20%
Over production	0	3	6	1	0	28	0.15	15%
Un-needed transport or movement	4	5	1	0	0	17	0.09	9%
Over quality, duplication	4	4	2	1	1	27	0.15	15%
Lack of standardization	5	1	2	2	0	21	0.11	11%
Failure demand, lack of customer's focus	0	4	6	0	0	26	0.14	14%
Under-utilized resources	1	2	4	3	0	29	0.16	16%
						185	1.00	100%

Table 3. Process activity mapping current state

No	Activities	VA	NVA	NNVA	Cycle time (second)
1	Customer pick up the queue ticket	√			12
2	Customer waiting for complaint queue		√		570
3	Customer is called by CS	√			7
4	Greeting by CS	√			7
5	Customer explains the problem to CS	√			176
6	Customer informs the *Indihome* number	√			6
7	CS reconfirms the *Indihome* number			√	8
8	CS checks the bill through the system	√			74
9	CS checks the data suitability			√	106
10	CS fills out the complaint form	√			422
11	CS asks for details location of customer's house		√		180
12	CS booking available technician through the system		√		61
13	The process of submitting complaints ticekts in the system	√			2
14	Closing	√			78

Table 4. Percentage of cycle time complaints service (current state)

Type of activity	Total cycle time (second)	*Percent*
VA	784	46%
NVA	811	47%
NNVA	114	7%
Total	1709	100%

Table 5. Root cause analysis of "delays" waste

Critical Waste	Waste	Why 1	Why 2	Why 3	Why 4
Delays	There is a queue of customers waiting for the complaint process.	The service process is quite long.	Ineffective service procedures	Lack of utilization of available technology	There is no VIRSA (Virtual Plasa) machine operator.

Table 6. Root cause analysis of "under-utilized resource" waste

Critical waste	Waste	Why 1
Under-utilized Resources	Lack of employee skills	Deficiency of routine training

Table 6 describes root cause analysis for under-utilized waste resources.

Based on Table 5 and Table 6, it is known that the root cause of the problem of waste delays is the absence of a VIRSA machine operator, and the root of the problem of waste under-utilized resources is the deficiency of routine training.

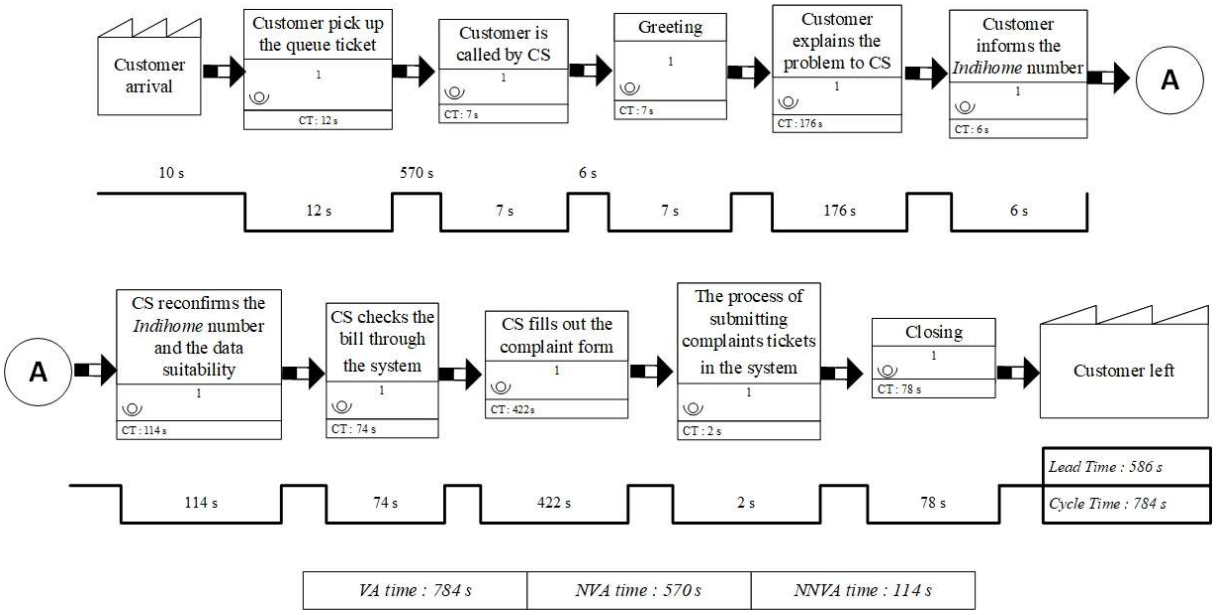

Figure 2. Value stream mapping future state

Table 7. Process activity mapping future state

No	Activities	VA	NVA	NNVA	Cycle time (seconds)
1	Customer pick up the queue ticket	√			12
2	Customer waiting for complaint queue		√		570
3	Customer is called by CS	√			7
4	Greeting by CS	√			7
5	Customer explains the problem to CS	√			176
6	Customer informs the *Indihome* number	√			6
7	CS reconfirms the *Indihome* number and check the data suitability			√	114
8	CS checks the bill through the system	√			74
9	CS fills out the complaint form	√			422
10	The process of submitting complaints ticekts in the system	√			2
11	Closing	√			78

Based on Table 7, there is elimination and merging of activities from the current state process activity mapping, namely eliminating non-value added activities, namely choosing CS to ask for details of customer address locations and CS booking technicians available through the system. These two activities were abolished because they were based on real conditions, even though the location details were written on the form registered in the system, the technician still asked the customer to share the location, so this activity was considered ineffective if it was carried out. The activity of booking technicians available through the system needs to be abolished because with the submission form process by CS, the system automatically searches for the nearest technician according to the location code that has been listed in the disturbance reporting form so that the complaint reporting process will be more effective. Merging activities from current state process activities by combining necessary non value added activities, namely CS reconfirming the service number and checking the suitability of the service number so that the process is more effective.

Based on Table 8, it can be seen that the percentage of value added activity increased from 46% to 53%, the percentage of non value added activity decreased from 47% to 39%, and the percentage of necessary non value added

Table 8. Percentage of cycle time complaints service (future state)

Type of activity	Total cycle time (second)	Percentage
VA	784	53%
NVA	570	39%
NNVA	114	8%
Total	1468	100%

increased from 7% to 8%. The increase and decrease in this percentage was caused by a reduction in the time of all activities because there were several activities that were omitted, such as CS asking for customer location details and CS booking technicians through a system that has cycle times of 180 seconds and 61 seconds, so that in total the service process can save 241 seconds or by 4 minutes per customer.

The following is a proposed improvement to the waste that occurs, namely delays and underutilized resources so that there is a queue of customers waiting to be served and a lack of employee skills. The root of the problem of these two critical wastes is that they are not optimal in the use of the VIRSA (Virtual Plasa) machine which should be used in order to speed up the process of nuisance complaints, thereby minimizing the occurrence of large queues. CS should also provide education to customers to take advantage of the MyIndihome application as a means for complaints complaints, so as to minimize queues at Plaza Telkom. Thus, it requires at least two CS admins to handle complaints virtually through the machine.

IV. Conclusion

The most critical waste that occurs in the complaint process for Indihome disturbances is waste delays with customer activities waiting a long time to be served, which is caused by the less than optimal use of the VIRSA (Virtual Plasa) machine. The next critical waste is under-utilized resource waste with the root cause of the lack of regular employee training.

The total time required for the Indihome disturbance complaint service process is 1709 seconds for one customer, and after repairs are made, the total time required for the Indihome disturbance complaint service process for one customer is 1468 seconds.

The percentage of activity types in the current state are VA 46%, NVA 47%, and NNVA 7%. After improvement, the percentage of types of activities in the future state changed to 53% VA, 39% NVA, and 8% NNVA.

Improvement initiatives to increase process efficiency, namely by maximizing the use of VIRSA (Virtual Plasa) machines, educating customers to use MyIndihome, and conducting regular training.

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